



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
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DALLAS, TX 75202-2733

NOV 29 1995



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(EPA Contractor)

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Mr. Theodore J. Taylor
Program Manager
Department of Energy
Los Alamos Area Office
Los Alamos, NM 87544

Re: RFI Report for Technical Area 45, Notice of Deficiency
Los Alamos National Laboratory (NM0890010515)

Dear Mr. Taylor:

The Environmental Protection Agency (EPA) has reviewed the RFI Report for Technical Area 45, and found it to be deficient. Los Alamos National Laboratory has ninety (90) days from the date of this letter to respond to the enclosed list of deficiencies.

Should you have any questions, please feel free to contact Ms. Barbara Driscoll at (214) 665-7441.

Sincerely,

David W. Neleigh, Chief
New Mexico and Federal
Facilities Section

Enclosure

cc: Mr. Benito Garcia
New Mexico Environment Department
Mr. Jorg Jansen
Los Alamos National Laboratory, MS M992



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List of Deficiencies
ERI Report for Technical Area 45
Los Alamos National Laboratory

1. Section 3.2.1, Background Comparison Methodology, Inorganics, Page 10; and Table 3-1, List of UTLs for LANL Soil Background Data for Inorganic Analytes, Page 11

The UTL values discussed on Page 10 and presented in Table 3-1 could not be duplicated by following the calculations presented in Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities (U.S. EPA Office of Solid Waste [OSW] 1989). For comparison, UTL values were calculated by EPA by using the EPA methodology for a one-sided 95 percent UCL with a coverage of 95 percent. Also, UTL values were calculated by EPA using other methods (Blank 1980; Sachs 1984). UTL values calculated by EPA using these methods were similar to, but generally less than, the values presented in Table 3-1. For example, in Table 3-1, the UTL for manganese is 1,030 milligrams per kilograms (mg/kg). Calculated values include the following:

- Manganese value of 838 mg/kg, calculated by using EPA methods with a one-sided 95 percent UCL and a coverage of 95 percent
- Manganese value of 1,132 mg/kg, calculated by using methods described in Sachs (1984), with a two-sided 95 percent UCL and a coverage of 99 percent, (although this procedure used a two-sided test instead of a one-sided test, it is conservative and produces a UTL value that is suitable for comparison.
- Manganese value of 401 mg/kg, calculated by using methods described in Blank (1980), with a one-sided 95 percent UCL.

If the UTL values in Table 3-1 are wrong, the table and the data comparisons should be revised. EPA recommends that LANL present the methodology that was used to calculate the UTLs in the report.

2. Section 3.2.1, Background Comparison Methodology, PAHs, Page 10

EPA has already provided comments on use of the Bradley document for comparison of PAHs with background.

3. Table 3-1, List of UTLs for LANL Soil Background Data for Inorganic Analytes, Page 11

For UTL calculations, guidance requires that the data set be normally or log-normally distributed (U.S. EPA OSW 1989). However, for the calcium data presented in Table 3-1, the coefficient of variation (COV) is 2.16, indicating that the data are non-normally distributed. EPA recommends that LANL explain how the UTL calculation was performed. If the calculation was performed with nontransformed data, it should be revised by using log-transformed data.

4. Table 3-1, List of UTLs for LANL Soil Background Data for Inorganic Analytes, Page 11

According to Table 3-1, SALs for aluminum and cobalt are not available. However, Table 3-2 of the RFI Report for Los Alamos National Laboratory, Potential Release Sites in Technical Area 32, indicates that SALs for aluminum and cobalt are 78,000 and 4,700 mg/kg, respectively. Revise the report to correct this discrepancy.

5. Table 3-1, List of UTLs for LANL Soil Background Data for Inorganic Analytes, Page 11

According to Table 3-1, the SAL for cadmium is 80 mg/kg, and the SAL for manganese is 11,000 mg/kg. However, Table 3-2 of the RFI Report for Los Alamos National Laboratory, Potential Release Sites in Technical Area 32, indicates that SALs for cadmium and manganese are 39 mg/kg and 390 mg/kg, respectively. Revise the report to correct this discrepancy.

6. Section 3.2.2, Human Health Screening Action Levels Comparison Methodology, Page 12

X The report indicates that SALs are based on regulatory levels—including proposed RCRA Subpart S risk-based methodology. Because LANL may consider off-site disposal of contaminated soil as a potential remedy, characterization of contaminated soil may depend on the toxicity characteristic rule analysis or other analytical requirements that the disposal facility may impose (Office of the Federal Register 1995). Although some chemicals may be eliminated as COPCs

for risk purposes, they may be considered COPCs for disposal purposes. EPA recommends that LANL (1) evaluate this situation, (2) develop a strategy for addressing it, and (3) implement appropriate sampling and analysis if this information is needed to address disposal requirements and restrictions.

7. Section 4.1.1. 1992 Sample Data Validation. Page 16

Based on the information presented, it appears that LANL did not collect or analyze matrix spike and matrix spike duplicate (MS/MSD) samples. According to EPA guidance (U.S. EPA OSWER 1995), MS/MSD samples must be collected and analyzed to determine potential effects resulting from matrix interference. EPA recommends that LANL collect additional samples from TA-45 and include MS/MSD samples to assess the potential of matrix interference. Without such samples, it is impossible to evaluate laboratory accuracy and precision and to evaluate bias in the data due to matrix interference. Also, LANL did not collect other quality assurance and quality control (QA/QC) samples (such as duplicates and rinseate blanks) at the frequency (usually one for every ten samples) recommended by EPA guidance (U.S. EPA OSWER 1995). EPA recommends (1) that LANL explain why QA/QC samples were not collected at the recommended frequencies during the phase I activities and (2) that LANL collect QA/QC samples at the recommended frequencies during future sampling events.

8. Section 4.1.1. 1992 Sample Data Validation. Page 17

The RFI report summarizes the results of data validation; however, the actual validation results are not specifically discussed in detail, except in Tables 4-1 and 4-2. From the information provided, it appears that some data for silver, selenium, and chromium may be biased; however, it is not clear whether the data is biased low or high. EPA recommends that LANL thoroughly discuss data validation in the report, including laboratory accuracy and precision, calibration, blanks, and field precision.

9. Table 4-1. Sample Data Validation Results for TA-45 Samples Collected in 1992. Page 22

The information for location 45-1037 (shown on Figure 4-4 and listed in Tables A-4 and A-5 in Appendix A) has apparently been omitted from the table. The report should

be revised to include the necessary information for samples collected at location 45-1037.

10. Section 4.1.2. 1993 Sample Data Validation. Page 27

LANL uses the qualifier UJ for bromochloromethane, which was not on the target compound list used by LANL (Contract Laboratory Program Method OLM01.8). UJ signifies an undetected quantity at an estimated level. EPA recommends that LANL use a different designation, such as NA (Not Analyzed), to indicate that the compound was not included in the analysis.

11. Section 4.1.2. 1993 Sample Data Validation. Page 27

The report states that aniline was not detected in a blind QC sample and that, because aniline was not detected in any samples, this is not of consequence. The inability to detect aniline, however, indicates a potential for false negatives in the base-neutral-acid extractables (BNA). LANL should explain the type of QC sample that was used for this evaluation; an MS/MSD sample may indicate a matrix interference, whereas a blank spike may indicate problems with the extraction or analytical equipment. EPA recommends that LANL provide additional information regarding the validity of the data to justify the conclusions presented in the report. If any of the data is biased, LANL should consider the bias in the comparison of contaminant levels for the evaluations of each PRS and during the completion of the ecological assessment.

12. Section 4.1.2. 1993 Sample Data Validation. Page 27

The report states that surrogate recoveries were low in sample AAA2884 and that the high explosives results are qualified only for this sample. EPA recommends that LANL explain why the low recoveries do not indicate a potential for false negatives in any HE samples other than AAA2884.

13. Table 4-2. Sample Data Validation Results for TA-45 Samples Collected in 1993. Pages 31 and 32

These two pages appear to be duplicates of pages 29 and 30. EPA recommends that the table be modified to omit the redundant pages.

14. Table 4-2. Sample Data Validation Results for TA-45 Samples Collected in 1993. Page 33

The table provides data validation results for samples discussed in the text; however, the analytical results for PRSs 45-001 and C45-001 in Table A-5 in Appendix A show that several additional samples were collected at each location. For example, Table 4-2 provides information for samples AAA2822, AAA2826, and AAA2828 from location 45-1029. By comparison, Table A-5 in Appendix A lists the following samples from location 45-1029: AAA2826, AAA2826R, AAA2826R (sic), AAA2959, AAA2957, AAA2908, AAA2822, AAA2822R, AAA2822R (sic), AAA2946, AAA2815, AAA2815R, AAA2815R (sic), AAA2949, AAA2828, AAA2828R, AAA2828R (sic). LANL should explain how the additional samples were used to help characterize PRSs 45-001 and C45-001 and include in the discussion analytical and data validation results.

15. Section 4.1.3. Tentatively Identified Compounds. Page 39

LANL states that tentatively identified compounds (TIC) were detected in lower concentrations than the other specifically identified compounds in the same samples. However, specific information—such as the actual TIC concentrations, sample numbers, and other compounds used for comparison—is not provided. Because low relative concentration does not necessarily equate to low risk, EPA recommends that LANL provide complete and specific information regarding the evaluation of TICs.

16. Section 4.2.1.2. Site Investigation of PRS 1-002. Page 40

LANL describes the sampling locations along the former discharge channel of PRS 1-002. However, several issues regarding this investigation require clarification.

- Has the pipeline been removed?
- Does the RFI and its recommendations include the former pipeline from the outfall to the north side of Canyon Road?
- As part of the Formerly Utilized MED/AEC Sites Remedial Action Program (FUSRAP) removal action, soil from the outfall was excavated and disposed of off site.

- Where were the RFI samples collected in relation (horizontal and vertical) to excavated and filled areas? (Provide a detailed diagram with cross sections showing the sampling locations in relation to current and former site features.).

Why did LANL only investigate surface and near-surface soils? (Explain why subsurface soils were not included in this investigation.)

17. Section 4.2.1.2, Site Investigation of PRS 1-002, Page 40

Samples from PRS 1-002 were analyzed for radionuclides, CLP Target Analyte List (TAL) metals, and semivolatile compounds (SVOC). Blank QC samples were analyzed for VOCs, but none of the field samples from the investigation were analyzed for the presence of VOCs. Typical industrial processes involving metals include a solvent wash (such as trichloroethylene). EPA recommends that LANL (1) provide the results of any field screening for VOCs, (2) address the potential presence of VOCs in the wastes managed at PRS 1-002, and (3) explain why the field samples from PRS 1-002 were not analyzed for VOCs.

18. Section 4.2.2.2, Site Investigation of PRSs 45-001 and C45-001, Page 46

For PRSs 45-001 and C45-001, LANL describes the sampling locations and states that excavation and filling has been conducted in the vicinity. However, it is not clear how the RFI sampling correlates to soil that could have been affected by operation of the unit rather than fill material brought in at a later date. EPA recommends that LANL (1) provide a diagram with cross sections showing the sampling intervals in relation to the excavated and filled areas, (2) discuss the status of the waste and floor drain lines, and (3) discuss whether the samples collected were representative of soils that were on site when the unit was active.

19. Section 4.2.2.2, Site Investigation of PRSs 45-001 and C45-001, Page 46

The report states that core samples were field screened for radioactivity and organic vapors. However, it does not provide any field screening results. Provide the field screening results.

20. Section 4.2.2.2, Site Investigation of PRSs 45-001 and C45-001, Page 46

LANL analyzed all of the samples for radiological screening parameters and TAL metals; selected samples were analyzed for VOCs, SVOCs, and radiochemical parameters. The analytical results show that VOCs are present in one location at the former waste treatment plant; however, the extent of VOC contamination at PRSs 45-001 and C45-001 has not been determined. None of the samples collected downgradient of the detected VOCs was analyzed for VOCs. Provide additional information on the extent of VOC contamination and evaluate any new findings in the screening assessment process for human and environmental receptors.

21. Section 4.2.2.2, Site Investigation of PRSs 45-001 and C45-001, Page 46

The report indicates that four samples were collected from each boring and analyzed for radiological parameters, SVOCs, TAL metals, and cyanide. However, Table A-4 in Appendix A shows that more than four samples were collected from each boring and analyzed for inorganic contaminants and "radvan" radiological scans. For instance, at location 45-1024, 10 samples were collected (AAA2825, AAA2850, AAA2863, AAA2868, AAA2871, AAA2904, AAA3019, AAA3020, AAA3054, and AAA3055). The report does not explain the rationale for choosing which samples received full analysis and consideration in the RFI text. EPA recommends that LANL explain how the additional samples were evaluated and how they relate to the characterization of nature and extent of contamination at these PRSs.

22. Section 4.2.2.3.1, Background Comparisons for PRSs 45-001 and C45-001, Page 49

The report indicates that acetone and toluene were detected in samples from PRS 45-001. However, both Table 4-6 and the data summary tables in Appendix A indicate that tetrachloroethylene and toluene were the constituents detected. Correct this discrepancy.

23. Section 4.2.2.3.2, Screening Action Levels Comparison for PRSs 45-001 and C45-001, Page 51

LANL eliminates chromium as a COPC, based on the concentration and depth of contamination. Chromium was

significantly above background in two samples from the lowest sample interval (21 to 23 feet below ground surface). One of the samples was above the SAL. The presence of elevated chromium levels in these two samples may indicate widespread erratic contamination at depths below the excavated fill material. It also indicates that the area was not characterized for RCRA constituents at the time of the removal action for radiological concerns. The sampling plan presented in Section 8.2.1 of the OU 1079 RFI Work Plan (LANL 1992) was designed to (1) resample locations of the acid waste lines, (2) confirm previous radiological surveys, and (3) determine if there is nonradiological contamination that presents unacceptable health risks. The sampling plan was not designed to characterize irregular distributions of contaminants. EPA recommends that LANL perform additional borings to fully characterize the extent of subsurface contamination.

24. Section 4.2.3.1, PRS 45-002 Description, Page 53

The report states that wastewater was (1) collected in a sump, and (2) pumped to a holding tank or seepage pit and into a manhole leading to the treatment facility. It is not clear whether any of these features currently exist or if their former locations can be ascertained. EPA recommends that LANL clarify whether any of these features still exist and whether the samples were collected from locations appropriate for evaluating these portions of the unit.

25. Section 4.2.4.2, Site Investigation of PRS 45-003, Page 60

The description of PRS 45-003 in the RFI does not indicate whether the waste line has been removed. The OU 1079 RFI Work Plan (LANL 1992) indicates that the TA-45 area was decommissioned; however, it is not clear whether the waste line is still in place. In addition, it is not clear (1) whether the original soils are still in place or (2) whether the area has been excavated and filled. EPA recommends that LANL discuss the status of the waste management system and ancillary equipment and provide information clarifying whether the area has been excavated and filled.

26. Section 4.2.4.2, Site Investigation of PRS 45-003, Page 60

The report describes the sampling locations and intervals at PRS 45-003. Four samples were collected from each borehole:

one immediately below the original depth of the former industrial waste sewer line, a second at the bedrock interface (if the former line was above the bedrock), a third at the bottom of the hole, and a fourth from a random depth in the core; one duplicate sample was collected for PRS 45-003. Table A-12 in Appendix A indicates that only two samples were collected from the first borehole, three samples from the second (including the duplicate), and one each from the third and fourth boreholes. EPA recommends that LANL reconcile the information in the text and the sample summary table.

27. Section 4.2.4.2. Site Investigation of PRS 45-003. Page 60

LANL analyzed the samples from PRS 45-003 for radionuclides, TAL metals, and SVOCs. LANL does not provide the characteristics of the wastes managed at this PRS. The RFI did not address the potential presence of VOCs at PRS 45-003. LANL should provide additional information on potential VOC contamination or justify why the potential for VOCs has not been investigated.

28. Section 4.3. Site-Wide Ecotoxicological Screening Assessment. Page 74

LANL performed an ecotoxicological assessment for only the canyon hillsides and bottoms. LANL detected methylene chloride in sample AAA1076 from the canyon hillside at PRS 45-002; however, LANL failed to include methylene chloride as COPEC in the ecotoxicological assessment. EPA recommends that LANL include methylene chloride as a COPEC in the ecotoxicological assessment.

29. Section 4.3. Site-Wide Ecotoxicological Screening Assessment. Page 74

LANL uses New England soil background concentrations of PAHs for the initial step of the screening assessment. These surrogate background concentrations may be significantly higher than the background concentrations at LANL. This is important with regard to those constituents with ESALs lower than the presumed background levels. EPA recommends that LANL either include all detected constituents in the screening assessment or provide site specific background concentrations.

REFERENCES

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